**Session 1- Geometry and Measurement**

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| **TIME** | **AGENDA** | **VOCAB** | **RESOURCES** |
| **4:00** | * Welcome/Intro * Overview of course * Assignments * COMPASS, RULER & PROTRACTOR are needed for this class! |  |  |
| **4:25** | Pre-Test |  |  |
| **4:45** | **Introduction to Measurement**  *Measurement can be a difficult concept, especially for young students. Based on conversations from previous classes, we have discovered that students learn best when concepts are taught in a real world context. Teachers should focus on hands on activities to give students experience using measurement rather than just showing pictures and assigning worksheets. (Van de Walle, pg 369)*  *To introduce this measurement lesson, challenge the class to think about measurement in the context of their own world by asking them the following questions and discussing them as a table/group/class:*   * Describe everything you know about “standard units of measure.” * Give examples of how you have used standard units of measure at home in the last week. * Give examples of how you have used non-standard units of measure at home in the last week. * Why is it important to have a standard system of measurement?   \*Use VDW pg. 372 (6th Edition pg. 377) to point out important reasons to use both standard and non-standard units of measure. | Non-Standard units of measure  Customary System  Metric System |  |
| **5:00** | **The Meaning and Process of Measuring**  Using the information on VDW pg. 370-372 (6th Edition pg. 376-378), walk teachers through each of the three steps of Measurement instruction. (See Table 19.1 Measurement Instruction- A Sequence of Experiences.) Be sure to discuss the importance of estimation and approximation. |  |  |
| **5:15** | **Measuring Length, Weight, and Capacity**  Have teachers break into small groups. Assign each group one topic and have them brainstorm lesson ideas using the sequence described above. Ideally, each group would be made up of both lower and upper grade teachers so that they can discuss how lessons would be different at each grade level.  Have each group present their lesson ides to the class.  *\*Remind teachers that the purpose of this activity is to show the sequence of teaching measurement. Teachers should not be too concerned about standard units of measure.* |  |  |
| **6:15** | **BREAK** |  |  |
| **6:30** | **M-CAP & M-COMP** |  |  |
| **6:45** | **The Metric System**  One of the pitfalls in teaching measurement is the fact that we teach students two different systems. Engage teachers by discussing the following statement:  *In 1971, the U.S. government issued a report called A Metric America: A Decision Whose Time Has Come. It denounced our English system, proclaiming that America would become a country of metric users by 1981.*  Briefly discuss the pros and cons of each system and reasons why Americans still haven’t adopted the Metric System? How does this affect our students?  Introduce the pattern of the metric system. Use examples from the metric conversion worksheets to go through the “I do, We do, Ya’ll do, You do” process.  *You may also want to refer to NCTM’s position statement on the metric system in VDW pg. 389. Too often teachers throw measurement in at the end of the year before testing, just to give their students brief exposure.* |  | **The Metric System** |
| **7:15** | **Measurement Conversion**  *As you discuss this section, teachers may get caught up on how much students need to know and memorize. Remind them that relationships between units are conventions and students need only be told what the relationships are and be given experiences working with them. For this reason, this portion of the lesson will simply remind teachers of those relationships and provide opportunities working with them. (VDW pg. 389)*  There are two ways to convert measurements. Students should be able to work within a system to convert from unit to unit. (inches to feet, quarts to gallons, etc.) They should also be able to convert between the two systems.  **Converting within a system**   * Pass out the Conversion Chart and allow teachers time to look through it. * Ask them what things they stood out, either because they already knew it or because it surprised them. * Throw out a few simple conversion problems and have them use their charts to quickly move within a system.   **Converting between two systems**  This is a little more complicated and the numbers are far less “friendly” to work with.   * Throw out a few examples and let them estimate their answers. * Use an online conversion tool to show teachers the actual measure. (www.convertit.com, www.convert-me.com, www.worldwidemetric.com/measurements.html)   *There are many conversion tools all over the internet, iPhone Apps, widgets, and even kitchen magnets. Take time to show teachers some of your favorites and encourage them to find some of their own and write about them in their Reflection Journals.* |  | **Conversion Chart** |
| **7:45** | **Homework**   * READING: Beckman pg. 441-443. * Metric Conversion Worksheet * Journal- Reflection on tonight’s lesson OR review of online measurement games/activities. |  |  |